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During the month of January, final electrical tests were conducted on the laboratory model of the r-f front end. The tests included measurement of gain, bandwidth, sensitivity, and noise figure. Tests were conducted to determine final specifications for all coils and transformers to allow manufacturing to be started. Parts required for the final receiver front end have been received or are on order.

TASK 6. RS-16A TEST POWER SUPPLY

Work on this Task has been completed.

TASK 7. SERVICE AND SUPPORT

A very high level of effort was devoted to this Task to meet an urgent operational requirement. A total of five reconditioned RS-16A Field Units were delivered during this reporting period. In addition, the majority of the spare parts required to maintain these units were also delivered. Delivery of the sixth and final unit to be reworked under this program should be accomplished during the next reporting period. Excellent results were obtained in transcontinental checkouts.

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The AS-4 terminal for receiving the RS-16A units was packed and shipped. One [redacted] engineer was sent [redacted] to assist in setting up the previously mentioned AS-4 terminal in addition to making routine checks on other equipment. 25X1

TASK 8. AS-6 DATA TELEMETERING SYSTEM

Field Unit: Design of the digital converter has been completed and all parts required for the service test model are on order. Assembly should take place in the next reporting period.

Mechanical design of the final model of the exciter was completed and the first unit now in the process of assembly. Field test operating frequencies have been determined so that crystals and coils for the first model can be ordered. Tests and investigations together with conferences with crystal suppliers are continuing to determine the best method of temperature compensating the high frequency crystal oscillators.

The servo motor for automatic tuning of the power amplifier arrived at the end of this reporting period and now design of this portion of the circuit can be finalized. The mechanical design of the power amplifier is substantially complete and the assembly of the first unit is well underway. 25X1

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The antenna tests conducted during the week of 19 January, between produced interesting and conclusive results. Although the results have not been completely analyzed at this time, two generalities can be made. In spite of the little electrical differences in the horizontal antennas, the highest antenna, which was four (4) feet above ground, gave the best results. In addition, the 12-foot vertical whip compared quite favorably with the horizontal antennas, even down to the low

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The brass-board model of the Field Unit receiver is complete except for the phase detectors and the r-f front ends. Electrical design of phase detectors is, however, completed; the models are now being assembled. Two of the front-ends have been received and are currently being evaluated, following which they will become a part of the brass-board model. Delivery of the Field Unit is being imperiled by slow delivery from this subcontractor.

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Fabrication of the first final model of the receiver is about twenty per cent complete.

Design of the overall case is nearing completion. Fabrication of the case should be completed by mid-February. Sufficient cases have been ordered to allow a thorough test of the sealing problem to be undertaken at the same time that the service test model is being assembled.

The long-term programmer being developed by is an especially critical component of the AS-6 Field Unit. Costs encountered by have exceeded their bid estimates, and both a first and a second overrun request have been received. It has not yet been determined whether delivery schedules are also subject to readjustment from this difficulty.

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Receive Terminal: Fabrication of the Data Cabinet and the first R-F Cabinet is about eighty per cent complete. Fabrication of the second and third R-F Cabinets is approximately forty per cent complete. As individual chassis are completed, they are connected into the breadboard model for electrical checkout. Systems tests are continuing on the breadboard model as a parallel effort to fabrication effort.

Transmit Terminal: Fabrication of the Transmit (Interrogation) Terminal is about 50 per cent completed.